

WHAT IS CLAIMED IS:

566 (15)
1. A conductive member, comprising a conductor having a pair of opposed parallel surfaces and a convex surface connecting respective first ends of the pair of opposed parallel surfaces to one another.

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10 2. The member of claim 1, further comprising an opening formed within the conductor in a direction substantially parallel to that of the opposed parallel surfaces, wherein the opening is adapted to maintain an insulated wire or cable in a straight orientation within the conductive member when the wire or cable is arranged within the opening.

15 3. The member of claim 2, wherein the opening is formed within a portion of the conductor bounded by the convex surface, and wherein a shape of the convex surface follows a shape of a portion of the opening.

20 4. The member of claim 2, wherein the opening is adapted to maintain, throughout the length of the conductor, an inner conductor of the insulated wire or cable within about one millimeter of a fixed lateral position within the opening.

25 5. The member of claim 4, wherein the opening is adapted to maintain the inner conductor within about 0.25 millimeters of the fixed lateral position.

6. The member of claim 1, wherein each of the opposed parallel surfaces extends along the length of the conductor, and has sufficient width, along a direction perpendicular to the length of the conductor, to provide a flat mounting surface for a radiating element of a log-periodic dipole array antenna.

7. The member of claim 1, further comprising a set of holes within the conductor, wherein each hole is formed through one of the opposed parallel surfaces and directed substantially perpendicular to the opposed parallel surfaces.

5 8. The member of claim 7, wherein each of the holes extends entirely across the conductor, beginning at one of the opposed parallel surfaces and ending at the other of the opposed parallel surfaces.

9. The member of claim 7, wherein the holes are spaced apart along the length of the
10 conductor with a logarithmically increasing spacing between them, and are thereby adapted for attachment of radiating elements of a log-periodic dipole array antenna.

10. The member of claim 1, further comprising a concave surface arranged opposite the convex surface of the conductor, wherein the concave surface connects respective
15 other ends of the pair of opposed parallel surfaces.

11. The member of claim 2, wherein the conductor comprises first and second portions joined together, and wherein each of the first and second portions includes a part of the opening.

20 12. A conductive member, comprising:

a monolithic conductor having a pair of opposed parallel surfaces; and

25 a cable guide arranged inside the conductor and oriented in a direction substantially parallel to that of the opposed parallel surfaces, wherein the guide is adapted to maintain an insulated wire or cable in a straight orientation within the conductive member when the wire or cable is arranged within the guide.

13. The member of claim 12, wherein the guide is adapted to maintain, throughout the length of the conductor, an inner conductor of the insulated wire or cable within about one millimeter of a fixed lateral position within the guide.

5 14. The member of claim 13, wherein the guide is adapted to maintain the inner conductor within about 0.25 millimeters of the fixed lateral position.

15. The member of claim 12, wherein the conductor comprises a first conductive tube.

10 16. The member of claim 15, wherein the first conductive tube has a rectangular cross-section.

17. The member of claim 16, wherein the cable guide comprises a second tube attached to an inner wall of the first tube.

15 18. The member of claim 12, wherein the conductor comprises a conductive bar, and the cable guide comprises an opening formed within the bar.

19. The member of claim 18, wherein said conductive bar further comprises a convex surface connecting respective first ends of the opposed parallel surfaces to one another.

20. The member of claim 19, wherein the opening is proximal to the convex surface, and wherein a shape of the convex surface follows a shape of a portion of the opening.

25 21. The member of claim 19, wherein the conductive bar further comprises a concave surface arranged opposite the convex surface of the bar, wherein the concave surface connects respective other ends of the pair of opposed parallel surfaces.

22. An antenna, comprising:

a monolithic first conductor having a pair of opposed parallel surfaces and a cable guide arranged inside the conductor and oriented in a direction substantially parallel to that of the opposed parallel surfaces;

a length of insulated wire or cable arranged within the guide, wherein the wire or cable is maintained by the guide in a straight orientation along and within the conductor; and

at least one conductive antenna element attached to one of the opposed parallel surfaces of the first conductor.

23. The antenna of claim 22, wherein the antenna element is oriented in a direction substantially perpendicular to that of the first conductor.

24. The antenna of claim 22, wherein the cable guide is adapted to maintain, throughout the length of the conductor, an inner conductor of the insulated wire or cable within about one millimeter of a fixed lateral position within the guide.

25. The antenna of claim 24, wherein the cable guide is adapted to maintain the inner conductor within about 0.25 millimeters of the fixed lateral position.

26. The antenna of claim 22, wherein the length of insulated wire comprises an inner conductor surrounded by a dielectric sleeve.

27. The antenna of claim 26, wherein the length of insulated wire further comprises an outer conductor surrounding the dielectric sleeve.

28. The antenna of claim 22, wherein the first conductor comprises a first conductive tube.

29. The antenna of claim 28, wherein the first conductive tube has a rectangular cross-section.

30. The antenna of claim 28, wherein the cable guide comprises a second tube attached to an inner wall of the first tube.

31. The antenna of claim 22, wherein the first conductor comprises a conductive bar, and the cable guide comprises an opening formed within the bar.

32. The antenna of claim 22, further comprising:

a second conductor having a pair of opposed parallel surfaces, wherein an inner conductor of the length of insulated wire or cable is electrically coupled to an end of the second conductor; and

at least one conductive antenna element attached to one of the opposed parallel surfaces of the second conductor.

33. The antenna of claim 32, wherein the first and second conductors further comprise first and second convex surfaces, wherein the first convex surface bridges between first ends of the pair of opposed parallel surfaces of the first conductor, and the second convex surface bridges between first ends of the pair of opposed parallel surfaces of the second conductor.

34. The antenna of claim 33, wherein the first and second conductors are arranged such that their respective opposed parallel surfaces are aligned, and such that the first and second convex surfaces face away from one another.

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35. The antenna of claim 33, wherein the first and second conductors further comprise first and second concave surfaces, wherein the first concave surface bridges between other ends of the pair of opposed parallel surfaces of the first conductor, wherein the second concave surface bridges between other ends of the pair of opposed parallel surfaces of the second conductor, and wherein the first and second conductors are arranged such that the first and second concave surfaces face each other.

36. An antenna, comprising:

a conductor having a pair of opposed parallel surfaces, a convex surface connecting respective first ends of the pair of opposed parallel surfaces to one another, and an opening formed within the conductor in a direction substantially parallel to that of the opposed parallel surfaces;

a length of insulated wire or cable arranged within the opening; and

at least one conductive antenna element attached to one of the opposed parallel surfaces of the conductor.

37. The antenna of claim 36, wherein the antenna element is oriented in a direction substantially perpendicular to that of the conductor.

38. A method of forming a conductive member, said method comprising forming a cable guide arranged inside a monolithic conductor having opposed parallel surfaces, wherein the cable guide is oriented in a direction substantially parallel to that of the opposed parallel surfaces, and wherein the cable guide is adapted to maintain an insulated wire or cable in a straight orientation within the conductive member when the wire or cable is arranged within the guide.

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39. The method of claim 38, further comprising forming the conductor.
40. The method of claim 38, wherein the conductor comprises a first conductive tube, and said forming the cable guide comprises attaching a second tube to an interior wall of the first tube.
41. The method of claim 39, wherein said forming the conductor comprises forming a conductive bar, and wherein said forming the cable guide comprises forming an opening within the bar.
42. The method of claim 41, wherein said forming the conductive bar comprises forming the bar with a convex surface connecting together respective first ends of the opposed parallel surfaces.
43. The method of claim 41, wherein said forming the conductive bar and forming the opening comprise extruding metal.
44. The method of claim 41, wherein said forming the conductive bar and forming the opening comprise drawing metal.
45. The method of claim 41, wherein said forming the conductive bar and forming the opening comprise casting metal.
46. The method of claim 38, further comprising forming a set of holes within the conductor, wherein each hole is formed through one of the opposed parallel surfaces and directed substantially perpendicular to the opposed parallel surfaces.
47. The method of claim 46, wherein said forming the set of holes comprises casting metal.

48. The method of claim 46, wherein said forming the set of holes comprises machining the conductor.

49. A method of forming a conductive member, said method comprising forming an opening within a conductor having opposed parallel surfaces and a convex surface connecting respective first ends of the pair of opposed parallel surfaces to one another.

50. The method of claim 49, wherein said forming the opening comprises forming the opening within a portion of the conductor bounded by the convex surface, and wherein a shape of the convex surface follows a shape of a portion of the opening.

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